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HASIL PENILAIAN SEJAWAT SEBIDANG ATAU *PEER REVIEW*
KARYA ILMIAH : JURNAL ILMIAH

Judul Publikasi Ilmiah (Artikel)		:	Synthesis, Characterization And Selectivity Of Molecularly Imprinted Polymer (MIP) Glucose Using Polyeugenol As A Functional Polymer
Jumlah Penulis		:	2(dua) orang
Status Penulis		:	Penulis Pertama
Identitas Jurnal Ilmiah	a. Nama Jurnal Ilmiah:	:	Rasayan Journal of Chemistry
	b. Nomor ISBN /ISSN	:	ISSN: 0974-1496 | e-ISSN: 0976-0083 | CODEN: RJCABP
	c. Volume, Nomor, Bulan, Tahun	:	Vol. 12 | No. 2 |809 – 821| April - June | 2019
	d. Penerbit	:	Rasayan Journal of Chemistry
	e. **DOI artikel (jika ada)**	:	**DOI:** http://dx.doi.org/10.31788/RJC.2019.1225120
	f. **Alamat web jurnal**	:	https://rasayanjournal.co.in/index.html
	g. **Terindeks**	:	**di** SCOPUS **(category : Q3),** Scimago Journal Rank **(powered by SCOPUS),** : SciFinder **- Powered by Chemical Abstract Services (CAS),** ROAD - the Directory of Open Access scholarly Resources, Google Scholar, CrossRef, **Illumina, Ebsco, Ulrichsweb,**
	h. Jumlah Halaman		**12 (809 – 821)**

Kategori Publikasi Jurnal Ilmiah : ☑Jurnal Ilmiah Internasional / Internasional Bereputasi **

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Komponen Yang Dinilai	Nilai Maksimal Jurnal Ilmiah			Nilai Akhir yang diperoleh
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	(40)			
a. Kelengkapan unsur isi jurnal (10%)	4			4
b. Ruang lingkup dan kedalaman pembahasan (30%)	12			11
c. Kecukupan dan kemutahiran data/ informasi dan metodologi (30%)	12			9
d. Kelengkapan unsur dan kualitas penerbit (30%)	12			11
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Nilai Pengusul =	60%x35			21

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3. **Kecukupan dan kemutakhiran data/informasi dan metodologi:**
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Semarang, - 11 – 2019

Prof. Dr. Muhammad Djaeni, ST, MEng.
NIP. 197102071995121001
Unit kerja : Universitas Diponegoro
Jabatan Fungsional : Guru Besar
Bidang ilmu: Teknik Kimia

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Rata-rata Peer Review= 19.65
Nilai PAK Universitas = 18,5
Ttd. Penilai PAK Universitas

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LEMBAR
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU *PEER REVIEW*
KARYA ILMIAH : JURNAL ILMIAH

Judul Publikasi Ilmiah (Artikel)	:	Synthesis, Characterization And Selectivity Of Molecularly Imprinted Polymer (MIP) Glucose Using Polyeugenol As A Functional Polymer
Penulis Jurnal Ilmiah	:	Muhammad C. Djunaidi [1,*] , Yayuk Astuti
Identitas Jurnal Ilmiah	a. Nama Jurnal Ilmiah:	Rasayan Journal of Chemistry
	b. Nomor ISBN /ISSN	ISSN: 0974-1496 | e-ISSN: 0976-0083 | CODEN: RJCABP
	c. Volume, Nomor, Bulan, Tahun	Vol. 12 | No. 2 |809 – 821| April - June | 2019
	d. Penerbit	Rasayan Journal of Chemistry
	e. DOI artikel (jika ada)	**DOI:** http://dx.doi.org/10.31788/RJC.2019.1225120
	f. Alamat web jurnal	https://rasayanjournal.co.in/index.html
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	e. Jumlah Halaman	12 (809 – 821)

Kategori Publikasi Jurnal Ilmiah :
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c. Kecukupan dan kemutahiran data/ informasi dan metodologi (30%)	12			9,0
d. Kelengkapan unsur dan kualitas penerbit (30%)	12			10,0
Total = (100 %)	40			30,5
Nilai Pengusul =				

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. 2. **Ruang lingkup dan kedalaman pembahasan:**	:	Pembahasan lebih banyak dalam bentuk diskripsi, How dan Why brlum diungkap. Komparasi dengan peneliti lain telah dilakukan.
3. **Kecukupan dan kemutakhiran data/informasi dan metodologi**	:	Referensi yang diguanakn 5 tahun terakhir sebanyak adalah 6 buah dari 13 buah referensi, dengan 3 buah dari Ybs. Metode penelitian yang diguakan cukup umum dipakai oleh peneliti (skor= 9,5).
4. **Kelengkapan unsur dan kualitas terbitan:**	:	RJC penerbit dari india, dengan editorial cukup banyak Negara dan sudah terindeks Scopus (skor= 10,0).

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Prof. Dr. Widayat, ST, MT
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Rasayan Journal of Chemistry Open Access
Volume 12, Issue 2, April-June 2019, Pages 809-821

Synthesis, characterization and selectivity of molecularly imprinted polymer (MIP) glucose using polyeugenol as a functional polymer (Article) (Open Access)

Djunaidi, M.C., Astuti, Y.

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Department of Chemistry, Faculty Sciences and Mathematics, Diponegoro University, Central Java 50278, Indonesia

Abstract

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Research on the synthesis of Molecularly Imprinted Polymer Glucose was undertaken by using polyeugenol as a functional polymer and Polyethylene Glycol Diglycidyl Ether (PEGDE) as a crosslinker agent. Polieugenol generated from eugenol then was tied with glucose template and crosslinked with PEGDE (Polyethylene Diglicidil Glycol ether) with a mole ratio of 1:1. Analysis of the results of the polymerization and crosslinking was performed using IR, GPC, NMR and XRD. Optimization of the adsorbent was conducted by varying the template concentration, the particle size of the adsorbent and eluent type. Glucose was analyzed by 3,5 dinitrosalicylic acid method. The selectivity of the MIP adsorbent was compared to Non-Imprinting Polymer and tested against fructose molecule. A characterization of MIP Glucose consisted of a chemical resistance test, re-use and selectivity. It is expected that MIP glucose adsorbs glucose more than NIP either in glucose solution or glucose solution mixed with fructose. The result was MIP adsorbent adsorbed glucose more than NIP but did not adsorb fructose otherwise NIP. The results obtained shows that MIP Glucose was resistant to any kind of organic acids (acetic acid), inorganic acids (HCl, HNO_3) and NaOH. Reuse of MIP Glucose as the adsorbent shows slightly decreased ability to adsorbed glucose when using ethanol, but tended to be stable when using demineralized water as a released solvent. MIP Glucose selectivity was seen in HPLC analysis. © RASĀYAN.

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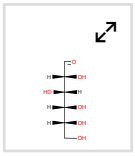
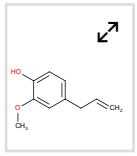
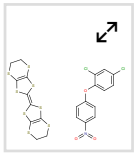
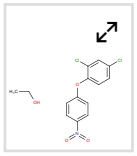
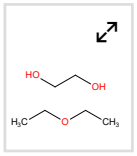
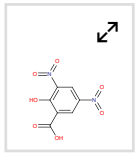

Author keywords

Fructose | MIP glucose | Polyeugenol | Selectivity

Funding details

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References (13)

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1 Parmpi, P., Kofinas, P.
Biomimetic glucose recognition using molecularly imprinted polymer hydrogels

(2004) *Biomaterials*, 25 (10), pp. 1969-1973. Cited 87 times.
http://www.journals.elsevier.com.proxy.undip.ac.id:2048/biomaterials/
doi: 10.1016/j.biomaterials.2003.08.025

View at Publisher

2 Paraskev, P., Bolisay, L.D.V., Kofinas, P.
(2003) *MRS Online Proceedings Library Archive*, 787.
G6.2.1

3 Darmokoesoemo, H., Kustyarini, L., Khasanah, M., Kusuma, H.S.
Analysis of glucose by potentiometry using electrode carbon paste/molecularly imprinted polymer (MIP) with metacrylic acid as monomer (Open Access)

(2017) *Rasayan Journal of Chemistry*, 10 (1), pp. 64-68. Cited 4 times.
http://www.rasayanjournal.co.in/archive.html
doi: 10.7324/RJC.2017.1011559

View at Publisher

4 Wizeman, W.J., Kofinas, P.
Molecularly imprinted polymer hydrogels displaying isomerically resolved glucose binding

(2001) *Biomaterials*, 22 (12), pp. 1485-1491. Cited 88 times.
doi: 10.1016/S0142-9612(00)00303-3

View at Publisher

5 Fazal, F.M., Hansen, D.E.
Glucose-specific poly(allylamine) hydrogels-A reassessment

(2007) *Bioorganic and Medicinal Chemistry Letters*, 17 (1), pp. 235-238. Cited 8 times.
doi: 10.1016/j.bmcl.2006.09.054

View at Publisher

6 Ibrahim, M., Alaam, M., El-Haes, H., Jalbout, A.F., De Leon, A.
Analysis of the structure and vibrational spectra of glucose and fructose (Open Access)

(2006) *Ecletica Quimica*, 31 (3), pp. 15-21. Cited 183 times.
http://www.scielo.br/pdf/eq/v31n3/02.pdf
doi: 10.1590/S0100-46702006000300002

View at Publisher

7 Djunaidi, M.C., Lusiana, R.A., Wibowa, P.J., Siswanta, D.J.
(2007) *Alchemy Journal Penelitian Kimia*, 6, p. 40. Cited 7 times.

8 Djunaidi, M.C., Jumina, D.S., Ulbricht, M.
(2015) *Indonesian Journal of Chemistry*, 15 (3).

9 Djunaidi, M.C., Jumina, Siswanta, D., Ulbricht, M.
Selective transport of Fe(III) using polyeugenol as functional polymer with ionic imprinted polymer membrane method (Open Access)

(2015) *Asian Journal of Chemistry*, 27 (12), pp. 4553-4562. Cited 13 times.
http://www.asianjournalofchemistry.co.in/Journal/ViewArticle.aspx?ArticleID=27_12_44
doi: 10.14233/ajchem.2015.19228

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10 Yanti, Nurhayati, T., Royani, I., Widayani, Khairurrijal
Synthesis and characterization of MAA-based molecularly-imprinted polymer (MIP) with D-glucose template (Open Access)

(2016) *Journal of Physics: Conference Series*, 739 (1), art. no. 012143. Cited 9 times.
http://www.iop.org/EJ/journal/conf
doi: 10.1088/1742-6596/739/1/012143

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11 Balieiro, A.L., Santos, R.A., Pereira, M.M., Figueiredo, R.T., Freitas, L.S., De Alsina, O.L.S., Lima, A.S., (...), Soares, C.M.F.
Adsorption process of molecularly imprinted silica for extraction of lactose from milk (Open Access)

(2016) *Brazilian Journal of Chemical Engineering*, 33 (2), pp. 361-372. Cited 6 times.
http://www.scielo.br/readcube/epdf.php?doi=10.1590/0104-6632.20160332s20140089&pid=S0104-66322016000200361&pdf_path=bjce/v33n2/0104-6632-bjce-33-02-0361.pdf&lang=en
doi: 10.1590/0104-6632.20160332s20140089

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12 Okutucu, B., Önal, S.
Molecularly imprinted polymers for separation of various sugars from human urine

(2011) *Talanta*, 87 (1), pp. 74-79. Cited 43 times.
https://www.journals.elsevier.com.proxy.undip.ac.id/talanta
doi: 10.1016/j.talanta.2011.09.043

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13 Irawan, D., Arifin, Z.
Glucose synthesis of organic waste with ultrasonic technology using chloride acid catalyst of hydrolysis process (Open Access)

(2017) *Rasayan Journal of Chemistry*, 10 (4), pp. 1302-1304. Cited 4 times.
http://www.rasayanjournal.co.in/admin/php/upload/278_pdf.pdf
doi: 10.7324/rjc.2017.1041945

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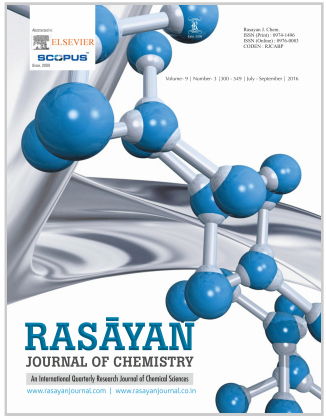

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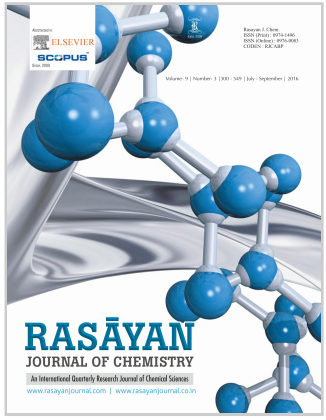

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Volume 12, Number 2, 402-1021, April-June (2019)

INVESTIGATION ON THE MINERALOGICAL PHASE OF ANCIENT BRICK SAMPLES OF KATHMANDU VALLEY (NEPAL) USING XRD AND FTIR ANALYSIS

D. B. Ghale, N. B. Bohara, N. Duwal and J. Bhattarai

Rasayan J. Chem, 12 (2), 402 - 408 (2019)

Keywords: Archaeological brick, Characterization, X-ray diffraction, FTIR, Quartz, Feldspars

DOI: http://dx.doi.org/10.31788/RJC.2019.1224034

PHYSICOCHEMICAL ANALYSIS OF GROUNDWATER QUALITY OF VELLIANGADU AREA IN COIMBATORE DISTRICT, TAMILNADU, INDIA

K. Karthik, R. Mayildurai, R. Mahalakshmi and S. Karthikeyan

Rasayan J. Chem, 12 (2), 409 - 414 (2019)

Keywords: Physicochemical, Groundwater, Velliangadu, Coimbatore, Pollution

DOI: http://dx.doi.org/10.31788/RJC.2019.1225005

ONE POT SYNTHESIS OF PYRAZOLO PHTHALAZINE DIONE DERIVATIVES UNDER MICROWAVE IRRADIATION

S. R. Kolsepatil, A. V. Sapkal, S. Chandole and D. L. Lingampalle

Rasayan J. Chem, 12 (2), 415 - 420 (2019)

Keywords: Multicomponent Reaction, Green Synthesis, Pyrazolo Phthalazine Dione, Microwave Irradiation.

DOI: http://dx.doi.org/10.31788/RJC.2019.1225035

IMPACT OF IN SITU RICE CROP RESIDUE BURNING ON AGRICULTURAL SOIL OF DISTRICT BATHINDA, PUNJAB, INDIA

Roopjit Kaur, Manjeet Bansal, Seema Sharma and Sridevi Tallapragada

Rasayan J. Chem, 12 (2), 421 - 430 (2019)

Keywords: Rice straw burning, Soil enzyme, Soil property, Macronutrients

DOI: http://dx.doi.org/10.31788/RJC.2019.1225160

ASSESSMENT OF Passiflora vitifolia LEAVES EXTRACT AS A POTENTIAL INHIBITOR FOR MILD STEEL ACID CORROSION

ECONOMIC FEASIBILITY STUDY OF FOOD-GRADE DYE PRODUCTION FROM RED MELINJO PEELS

Yuli Amalia Husnil, Ermiziar Tarmizi, Absharina Zatadini Edyatika Putri, Mega Angelia Nusandari , Latifa Hanum Lalasari

Rasayan J. Chem, 12 (2), 641 - 649 (2019)

Keywords: Anthocyanin, Investment, Factory, ROI, Steady Estimate

DOI: http://dx.doi.org/10.31788/RJC.2019.1225091

SYNTHESIS OF NaP1 AND FAUJASITE ZEOLITE FROM NATURAL ZEOLITE OF ENDE-NTT AS LEAD (Pb(II))ADSORBENT

A.R. Utami, S. Sugiarti and P. Sugita

Rasayan J. Chem, 12 (2), 650 - 658 (2019)

Keywords: Adsorption, Adsorption Free Energy (âˆ†Gads), CEC, Hydrothermal, Zeolite

DOI: http://dx.doi.org/10.31788/RJC.2019.1222056

AN EXPERIMENTAL INVESTIGATION ON PARTIAL REPLACEMENT OF SAND BY CERAMIC GRAINS IN COCONUT SHELL CONCRETE

S. Prakash Chandar, K. Gunasekaran, V. Kalpana Priya and N. Ganapathyramasamy

Rasayan J. Chem, 12 (2), 659 - 665 (2019)

Keywords: Coconut shell, Ceramic waste, Compression strength, Split tensile strength, Flexural strength

DOI: http://dx.doi.org/10.31788/RJC.2019.1225227

MODELING AND OPTIMIZATION OF THE ORANGE LEAVES OIL EXTRACTION PROCESS BY MICROWAVE-ASSISTED HYDRO-DISTILLATION: THE RESPONSE SURFACE METHOD BASED ON THE CENTRAL COMPOSITE APPROACH (RSM-CCD MODEL)

Tan Phat Dao, Duy Chinh Nguyen, Thien Hien Tran, Phan Van Thinh,Vu Quang Hieu, Dai Viet Vo Nguyen, Trinh Duy Nguyen and Long Giang Bach

Rasayan J. Chem, 12 (2), 666 - 676 (2019)

Keywords: Orange Leaves Oil, Microwave-assisted Hydro-distillation, Response Surface Methodology, GC-MS.

DOI: http://dx.doi.org/10.31788/RJC.2019.1225107

SYNTHESIS AND DOCKING STUDIES OF 1-(2- FLUOROPHENYL)-3-(4-((PYRIDINE-2-YL) METHYL) PIPERAZINE-1-YL)-1H-INDAZOLE

V. Balaraju,S. Kalyani and E. Laxminarayana

Rasayan J. Chem, 12 (2), 677 - 684 (2019)

Keywords: 2-Bromo-N-(2-fluorophenyl) benzohydrazide, 2-(Bromomethyl) pyridine Hydrobromide, antibacterial activity

DOI: http://dx.doi.org/10.31788/RJC.2019.1225111

EXPERIMENTAL INVESTIGATION ON DURABILITY PROPERTIES OF CONCRETE ADDED WITH NANO SILICA

R. Prashanth, S. Senthil Selvan and M. Balasubramanian

Rasayan J. Chem, 12 (2), 685 - 690 (2019)

Keywords: Nanoparticles, Pozzolanic, Durability, Cementitious, Microstructure, Permeability

DOI: http://dx.doi.org/10.31788/RJC.2019.1225165

STRUCTURE ELUCIDATION OF DEGRADATION PRODUCTS OF Z- ISOMER OF LULICONAZOLE ACTIVE PHARMACEUTICAL INGREDIENT

Shaik John Saida, Manikandan A , V.V.S.R.N.Anji Karun Mutha, Muralidharan Kaliyaperumal, Chidananda Swamy Rumalla, Ramulu Yanaka and S. Venkat Rao

Rasayan J. Chem, 12 (2), 691 - 696 (2019)

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M. Sudha Rani, N. Ch. Kalyani, Ch. Murthy , N. Bhasker and B.V. Subba Reddy

Rasayan J. Chem, 12 (2), 796 - 802 (2019)

Keywords: 8-Substituted-2, 5-Dihydro-2-(4-tolybenzo)-5-(3-methybut-2-enyloxy) phenol-1, 5 Benzothiazepines, Benzothiazepines Derivatives, Prinyloxy Chalcones, Anti Cancer Activity

DOI: http://dx.doi.org/10.31788/RJC.2019.1224078

CHEMICAL ANALYSIS AND CYTOTOXIC ACTIVITY OF NHEXANE FRACTION OF Zanthoxylum acanthopodium DC. FRUITS

Denny Satria, Jansen Silalahi, Ginda Haro , Syafruddin Ilyasand Poppy Anjelisa Zaitun Hasibuan

Rasayan J. Chem, 12 (2), 803 - 808 (2019)

Keywords: Cytotoxic, chemical constituents, Zanthoxylum acanthopodium DC., n-hexane fraction.

DOI: http://dx.doi.org/10.31788/RJC.2019.1225180

SYNTHESIS, CHARACTERIZATION AND SELECTIVITY OF MOLECULARLY IMPRINTED POLYMER (MIP) GLUCOSE USING POLYEUGENOL AS A FUNCTIONAL POLYMER

Muhammad C. Djunaidi and Yayuk Astuti

Rasayan J. Chem, 12 (2), 809 - 821 (2019)

Keywords: MIP Glucose, Polyeugenol, Fructose, Selectivity

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KNO3/ACE: A COST-EFFECTIVE MATERIAL FOR SYNTHESIS OF (2E,4E)-1,5-DIPHENYLPENTA-2,4-DIEN-1-ONE AND (E)-3-PHENYL-5-STYRYL-1H-PYRAZOLE

Maria Maghdalena, Aulia Ratna Endriana, Shella Jeniferiani Willyam and Bayu Ardiansah

Rasayan J. Chem, 12 (2), 822 - 826 (2019)

Keywords: KNO3, ACE, Solid Catalyst, Chalcone, Pyrazole.

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SPATIAL AND TEMPORAL VARIATIONS IN SURFACE WATER QUALITY OF THE DAM RESERVOIR IN THE GUENITRA BASIN, ALGERIA

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Rasayan J. Chem, 12 (2), 827 - 832 (2019)

Keywords: Guenitra, Nutrients, Irrigation, Drinking, Turbidity

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ANALYSIS OF CHLOROPHYLL-A AND SUSPENDED SEDIMENT CONCENTRATION USING REMOTE SENSING IN MUTHUPET LAGOON, TAMIL NADU, INDIA

R. Nagalaskhmi, P. M. Rameshwaran ,G. Kokila Priya, G.Hemalatha, Justus Reymond and G. Premkumar

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Keywords: Lagoon, OCM Sensor, Chlorophyll-a, Suspended Sediments, Monitoring, Bio-optical Algorithm.

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STABILITY INDICATING DETERMINATION OF DARUNAVIR WITH HPLC IN BLOOD PLASMA SAMPLES

Manchuru Vanaja and J. Sreeramulu

Rasayan J. Chem, 12 (2), 839 - 848 (2019)

Keywords: Darunavir, blood plasma samples, tablets dosage form, method validation, antiretro viral drug product.

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Keywords: Schiff Base, Citral-MethylAnthranilate, Condensation, Citral, MethylAnthranilate

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ANTIOXIDANT AND ANTIBACTERIAL ACTIVITIES OF NONPOLAR TO POLAR SOLVENT EXTRACTS OF Sarang Banua (Clerodenrum fragrans Vent Willd) LEAVES

M. Simorangkir, W. Hutabarat, B. Nainggolan and S. Silaban

Rasayan J. Chem, 12 (2), 959 - 965 (2019)

Keywords: Clerodendrum fragrant Vent Willd, Antibacterial, Antioxidant, Polarity of solvent, Medicinal plant of Indonesian.

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C6H18N4 BEHAVIOUR ON REINFORCING-STEEL CORROSION IN CONCRETE IMMERSED IN 0.5 M H2SO4

Joshua Olusegun Okeniyi, Esther Titilayo Akinlabi, Jacob Olumuyiwa Ikotun and Elizabeth Toyin Okeniyi

Rasayan J. Chem, 12 (2), 966 - 974 (2019)

Keywords: Triethylenetetramine, steel-reinforced concrete, reinforcing-steel corrosion, microbial/industrial simulating-environment, corrosion rate, electrochemical monitoring analyses.

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THE DEVELOPMENT OF PVDF/PEI BLENDED MEMBRANE: EFFECT OF STIRRING TIME ON MEMBRANE CHARACTERISTICS AND PERFORMANCE

Nita Kusumawati, Pirim Setiarso , Agus Budi Santoso , Setya Chendra Wibawa and Supari Muslim

Rasayan J. Chem, 12 (2), 975 - 986 (2019)

Keywords: Membrane, Composite, Blend, Polyvinylidene Fluoride, Polyetherimide

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THE ANTIBACTERIAL EFFECT OF ENZYMATIC HYDROLYZED VIRGIN COCONUT OIL ON Propionibacterium acne, Bacillus subtilis, Staphylococcus epidermidis AND METHICILLIN-RESISTANT Staphylococcus aureus

Linda Margata, Jansen Silalahi, Urip Harahap, Dwi Suryanto and Denny Satria

Rasayan J. Chem, 12 (2), 987 - 993 (2019)

Keywords: Virgincoconut oil, Propionibacterium acne, Bacillus subtilis, Staphylococcus epidermidis, methicillinresistant Staphylococcus aureus

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SYNTHESIS AND CHARACTERIZATION FILM POLYPROPYLENE/RICE HUSK AND RICE HUSK ASH NANOCOMPOSITES

S. Aprilia, B. Arifin, Nasrul Arahman, Abubakar, Amri Amin, A.V. Wicaksono and D. Bakhtiar

Rasayan J. Chem, 12 (2), 994 - 1001 (2019)

Keywords: Rice husk, rice husk ash, nanofiller, polypropylene nanocomposites, characterization, mechanical analysis, and water absorption

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ANALYSIS CHEMICAL COMPOUNDS AND ANTIMICROBIAL ACTIVITY OF RED ONION (Allium cepa L.) BULB SKIN EXTRACT

Masfria, Ginda Haro and Vriezka Mierza

Rasayan J. Chem, 12 (2), 1002 - 1010 (2019)

Keywords: Chemical Compounds, Secondary Metabolites, Antimicrobial, Allium cepa L., Phytochemical Screening, Thin Layer Chromatography, Extract

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INVESTIGATION ON THE MINERALOGICAL PHASE OF ANCIENT BRICK SAMPLES OF KATHMANDU VALLEY (NEPAL) USING XRD AND FTIR ANALYSIS

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ABSTRACT

The total eight clay brick samples including five archaeologically importance samples from different historical sites and three samples from more than a century old buildings of Kathmandu valley were collected and their mineralogical phases were characterized using X-ray diffraction and Fourier transform infrared spectroscopic methods in this study. Mineralogical phases existed in these archaeological and ancient clay bricks are identified as quartz, feldspars, spinel, muscovite, margarite and hematite in accordance with the powder diffraction standard files. The degree of the disappearance of feldspars phase and appearance of the spinel phase in all the brick samples is found to be different indicating that the firing temperature applied to produce these brick specimens should not be same. The firing temperature applied for the production of the eight clay brick samples should be in the range of 900°-1000° C. Most of the archaeological clay brick samples used in this study should be produced by firing at the high-temperature comparison with those brick samples used in old buildings of Kathmandu valley.

Keywords: Archaeological brick, Characterization, X-ray diffraction, FTIR, Quartz, Feldspars

INTRODUCTION

Brick is one of the men made the oldest structural materials and it has been widely used all most all countries of the world mainly due to easy availability of its raw materials in the world. It was reported that different properties of the clay bricks depended on the mineralogy of the clay materials used to manufacture it, the manufacturing process and firing temperature[1]. The fired clay bricks are extremely durable and hence, there have been numerous archaeological masonry buildings standing for centuries as a testimony of the survival of the clay-based fired bricks. In general, clay bricks are classified into various groups based on their mineralogy. Previous research works also reported that the main factors to manufacture such type of bricks are clay raw material types and the firing temperature during their production that affects the quality and durability of bricks.[2-5]

The clay brick is used extensively in the construction industry all over the world. The global brick production is estimated at about 1.5 trillion annually[6] and Asian countries only account about 89-90 % of the global production, i. e., about 1.35 trillion bricks[7]. The clay brick production in Kathmandu valley is estimated more than 3.3 billion units[8] and with increasing demands of the clay bricks for the construction industry, bricks quality and cost become more important nowadays. The brick manufacturing techniques were depended on the supervisors and it was considered as the hereditary gifted knowledge passed on to generations from their forefathers[9]. This is the main reason that the knowledge about the ancient ceramic materials and their application techniques which were so successfully used in the past has now disappeared without any documentation in our part of the world. Furthermore, the mineralogical phase characterization of the historical bricks provides valuable information for restoration purposes to formulate new specific bricks using available raw materials. The clay brick is mostly homogeneous, harder and stronger due to the ceramic bond from the sintering phase of the silica and alumina clay

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TANNIN AND ANTIOXIDANT STATUS OF FERMENTED AND DRIED *Sorghum bicolor*

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ABSTRACT

The effects of some processing and extraction techniques on the tannin content and antioxidant activities of *Sorghum bicolor* (Linn) were evaluated. The ethanolic, methanolic and water extracts from the sorghum seeds were assessed after being fermented, or oven-dried for 0 (OVD-0), 30 (OVD-30) and 60 (OVD-60) mins, along with those of the chaff collected after fermentation, and the unprocessed sorghum (control). Tannin, total flavonoids, total phenol, polyphenol contents and 2, 2-diphenyl-1-picrylhydrazyl (DPPH) radical scavenging analysis were determined. All the processing techniques combined with the extraction methods significantly reduced ($p<0.05$) the tannins. OVD-30 combined with methanol extraction, and all the oven-drying techniques combined with aqueous extraction significantly increased ($p<0.05$) the flavonoids contents. Flavonoids levels in other methanol extracts and the ethanol extracts of sorghum seeds subjected to oven-drying methods were reduced significantly ($p<0.05$). The amount of phenolic extracted with both ethanol and methanol significantly increased ($p>0.05$) during the period of oven-drying. The phenolic contents in the seeds were reduced significantly ($p<0.05$) when extracted with an aqueous solution. The amount of polyphenols was increased significantly ($p<0.05$) by ethanol extraction when treated with air-drying (OVD-0). The DPPH scavenging activity was increased significantly ($p<0.05$) by the processing methods when subjected to either aqueous or methanolic extraction. Fermentation and oven-drying are a highly effective method of reducing the anti-nutritional factors of sorghum. Therefore, the therapeutic values of the processed sorghum seeds may be improved during consumption.

Keywords: Food, Processing, Fermentation, Drying, Anti-nutrients, Antioxidant

INTRODUCTION

Sorghum (*Sorghum bicolor (Linn.)* Moench) belongs to the Poaceae family and is the fifth (5^{th}) amongst the most vital cereal such as wheat, rice and barley. It is one of the most well-known and widely cultivated crops worldwide. Currently, different types of species of the grain have been described. These include sweet sorghum, grass sorghum, grain sorghum, forage sorghum, biomass sorghum, sorghum-Sudan grass hybrids (*Sorghum bicolor x Sorghum bicolor var. sudanense*), Sudan grass (*Sorghum bicolor ssp. drummondii*) and broomcorn[1,2]. Sorghum is mostly found in the sub-tropical and tropical region of all continents apart from Antarctica. Sorghum can easily adapt to warm, hot and even dry agro-ecologies. It is the cheapest source of energy, providing above 80 % of energy for human and animals especially in the developing countries. Countries like USA, China, India, Nigeria, Mexico, Argentina, Sudan and Egypt are the top of the global production chart of sorghum[3,4]. Sorghum is usually consumed either after it has been processed into flour or as a grain during preparation of traditional meals such as bisi (popped sorghum), ugali (fermented porridge), uji (unfermented porridge), buns (fermented or unfermented dough), chapatti (flat bread), pombe (alcoholic beverage) and a non-alcoholic beverage, known as togwa[5].

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EFFECT OF NICKEL DOPANT ON STRUCTURAL, MORPHOLOGICAL AND OPTICAL CHARACTERISTICS OF Fe_3O_4 NANOPARTICLES

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ABSTRACT

In this current work, the effect of different concentrations of nickel (Ni) dopant on the structural, morphological and optical properties of undoped Fe_3O_4 nanoparticles (NPs) are analyzed. Nickel doped Fe_3O_4 ($NiFe_3O_4$) NPs of five concentrations can be represented as 0.5% as NF1, 1.0 % as NF2, 1.5 % as NF3, 2 % as NF4 and 2.5 % as NF5. Undoped Fe_3O_4 and $NiFe_3O_4$ NPs are prepared by Chemical co-precipitation method from a mixture of $FeCl_2{\cdot}4H_2O$ and $FeCl_3{\cdot}6H_2O$ salts. Structural, morphological and optical properties of the synthesized undoped Fe_3O_4 and $NiFe_3O_4$ NPs were deliberated by a choice of characterization techniques such as XRD, FTIR, FE-SEM and UV-VIS. XRD established the characteristic structure, phase and purity of the synthesized undoped Fe_3O_4 and $NiFe_3O_4$ NPs; Average crystallite size is found to decrease with increasing Ni concentration. Surface morphology of undoped Fe_3O_4 and $NiFe_3O_4$ NPs was studied by scanning electron microscopy (SEM). The existence of FTIR peaks at 563.2 cm^{-1} and 433.5 cm^{-1} confirmed the formation of Fe_3O_4 NPs. It is due to the stretching vibrations of the Fe-O bond. The optical absorption of the synthesized nanomaterials was studied by DR UV-Vis spectrometer. Band gap measurements revealed that the indirect band gap values for synthesized Ni-doped nanomaterials (1.25 eV) are higher than the determinant value for the undoped Fe_3O_4 NPs (0.75 eV) due to a decrease in lattice constant. The results indicated that the Ni-doped Fe_3O_4 NPs strongly influences the microstructure, crystal structure and energy band gap.

Keywords: Nickel doped Fe_3O_4 nanomaterials, FTIR, FE-SEM, DR-UV-Visible, XRD analysis.

INTRODUCTION

Iron oxide is available in three phases in nature are Fe_3O_4, γ-Fe_2O_3 and α-Fe_2O_3 and, it is one of the most important transitions metal oxide[1]. The catalytic activity, biocompatibility, low-cost, non-toxicity and environmentally friendly nature of iron oxide materials leads to great research interest[2]. Metal oxide nanoparticles have widespread applications in energy materials, thermochromic, magnetism, biomedicine, imaging, communications technology and data storage, catalysts for organic transformations and super hydrophobic surfaces[3]. Among all, Fe_3O_4 (magnetite) is a most extensively studied ferrimagnetic oxide that has an inverse spinel structure. It attributes distinctive magnetic and electric properties due to the electron hopping between Fe^{2+} and Fe^{3+} ions in the octahedral sites. It is famous that the catalytic activity of Fe_3O_4 could be improved by doping them with transition metal ions[4].

A broad selection of methods include co-precipitation[5], wet chemical reduction synthesis[6], electrochemical[7], solid state reaction[8], microwave-assisted[9], sol-gel method[10], Novel flow injection[11],

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